years: (T1-3 N2) 73 (59-87)% vs (T4 N0/1) 90 (82-98)% vs (T1-3 N3/T4 N2) 83 (69-97), p=0.03). In multivariate proportional hazard regression analysis including the factors gender, PCI (yes/no), histology (scc/adeno), TN-subgroups, only gender remained significant (hazard ratio female vs male: 2.44 [1;5.98], p=0.05). 5-Year survival from the diagnosis of isolated brain relapse onwards was 22% in contrast to 3% for patients after diagnosis of relapses at any site (p=0.08).
Conclusions: A similar incidence of isolated brain relapses was found after trimodality or definitive RT/CT. The incidence of PCI was low in both arms without difference. Pts. with isolated brain relapse have a good prognosis after salvage therapy. Given this and the moderate incidence of brain metastases, PCI does not seem to provide a major therapeutic advantage.

PO-0675
Early detection of normal tissue complications using FDG PET/CT during lung cancer chemoradiotherapy
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Purpose/Objective: Biologically adaptive radiotherapy depends on early detection of response of tumor and/or normal tissue to allow timely adaptation of the remaining fractions. There is, however, little data on feasible time-points to measure response of tumor and normal tissues with FDG PET. We are therefore currently performing a study with weekly FDG PET/CT in non-small cell lung cancer patients during therapy. The aim of this paper is to detect early response of normal tissues.
Materials and Methods: All patients received 24 x 2.75 Gy concurrent with daily low dose cisplatinum. FDG PET/CT scans were made in treatment position directly before fractions 1, 6, 11, 16, and 21 and 1-3 months post-treatment. A region of interest (ROI) was defined as the part of the esophagus planned to receive more than 40 Gy physical dose, excluding the GTV and lymph nodes with a 5 mm margin. A lung ROI was defined as the region of lung tissue planned to receive more than 40 Gy excluding the primary GTV with a 5 mm margin. Appropriate margins were used such that, after rigid registration based on the bony anatomy, the ROIs did not intersect tumor, heart or chest wall in any of the follow up scans. For the esophagus and lung ROIs, cumulative FDG uptake histograms were made for each weekly scan. For the long ROI, also the mean CT number was evaluated in each weekly scan.
Results: In 7 out of 9 patients, a significantly increased SUV in the esophagus (SUV>4) could be seen before fractions 16 and/or 21. The increased uptake occurred in regions of the esophagus planned to receive more than 63 Gy. However, the delivered dose at which esophagitis was first detected on PET ranged from 34 to 54 Gy over the 7 patients. Clinical complaints generally preceded PET findings. The patients without PET esophagitis had a planned esophagus dose of <50Gy. Interestingly, none of the patients showed increased FDG uptake in the lung ROI during treatment (SUV change from -0.18 to 0.17, all non-significant). Lung ROI CT number changes during treatment were small and often negative (-93 to 29 HU, all non-significant).
In the 5 available follow-up scans, only two taken 3 months after treatment showed changes in the lung ROI: the mean SUV increased 1.4-2, and the mean density 140-260 HU. In all follow-up scans the FDG uptake in the esophagus had subsided.
Conclusions: This study shows that FDG uptake in the esophagus increases during chemoradiation at varying delivered doses and can be used to gauge early radiation damage. There was, however, no evidence of early PET or CT changes in the healthy lung receiving >40 Gy. The lack of CT response in this study (based on diagnostic CT) contradicts findings in the literature based on CBCT. The lack of early FDG uptake in the lung region receiving a high dose indicates that lung inflammation will not interfere with tumor response measurements.

PO-0676
Dosimetric predictive factors for radiation pneumonitis in sterotactic body radiotherapy
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Purpose/Objective: To investigate the correlation of lung dose volume parameters with radiation pneumonitis (RP) in non-small-cell lung cancer (NSCLC) and pulmonary metastases treated with stereotactic body radiotherapy (SBRT).
Materials and Methods: From January 2006 to January 2014, 72 patients with primary or metastatic lung tumors underwent SBRT with total dose of 40 Gy (47.22%) and 50 Gy (52.78%) in 5 fractions with Linac or Tomotherapy. The dose was prescribed to the isocenter, the fractionation schedule has been chosen according to diameter and location of the lesion (central vs peripheral). 54/72 (75%) patients had primary lung cancer and 18/72 (25%) patients had solitary secondary lung lesion. Dosimetric factors were extracted from the dose-volume histogram (DVH). PTV consisted of GTV plus 1 cm in cranial-caudal direction and 0.5 cm in others directions; after installation of Tomotherapy, expansion was 0.5 cm in all directions. Median tumor diameter was 20 mm (range 10-60) and 11 mm (5-22), median GTV was 5.87 cc (0.88-27.90) and 3.34 cc (0.33-9.07), median PTV was 28.48 cc (2.7-133.8) and 14.785 cc (7.3-113.3) for primary and secondary lung cancer, respectively. Response was evaluated with CT and/or FDG-PET imaging 3-4 months after the end of SBRT and every 4-6 months thereafter. Toxicity was evaluated according to CTCAE v3.0. We retrospectively analyzed clinical, treatment-related and dosimetric factors. Factors including total radiation dose, site of lesion, diameter, GTV, PTV, V5, V10, V20, V30 and mean lung dose (MLD) of ipsilateral lung were considered in order to evaluate the development of RP using the Cox proportional hazards model. The predictive accuracy for RP was assessed by using